

DURA-Peel, DURACON-Based Removable High Accuracy IR Thermography Coatings, Phase I

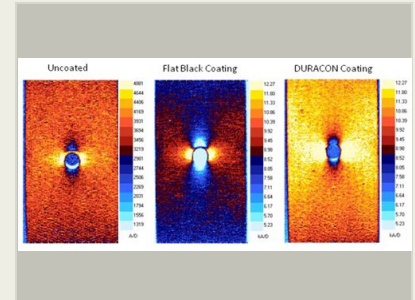
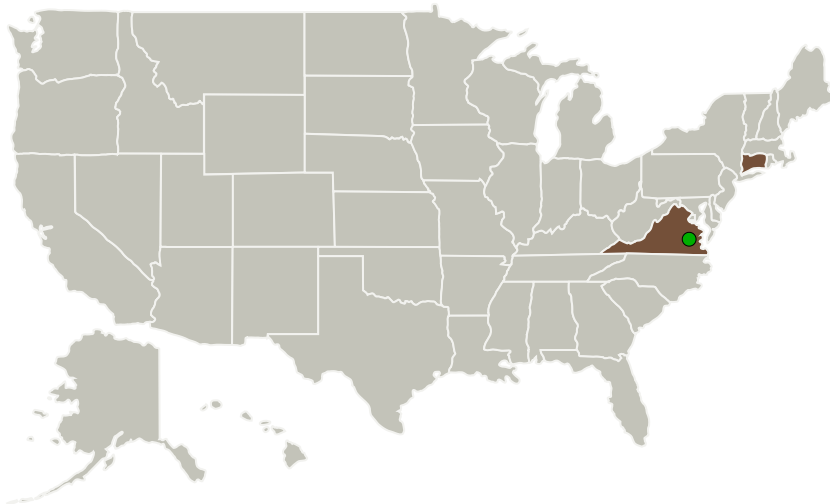
Completed Technology Project (2013 - 2013)



Project Introduction

Fiber reinforced composite materials are used extensively in aerospace applications due to their high stiffness and strength to weight ratio, and superior thermal, mechanical, electromagnetic and fatigue properties. However, given their demanding operational environment, composite aerospace and aircraft structures are prone to damage and manufacturing related flaws. An accurate assessment of composite structural performance and system life management strategies requires quantitative information on the aforementioned damage states of the components. Recent advances in infra-red (IR) sensing and data processing technologies have enabled real-time thermoelastic stress analysis (TSA) methodologies to finally become viable for accurate diagnostics and prognostics of composite structures. The success of these thermography methods, however, depends strongly on the characteristics of the surface of the composite components. Materials Technologies Corporation (MTC) proposes to develop a specialized, spray-on and peel-off coating technique which would facilitate high accuracy quantitative thermoelastic analysis through improved IR response and thus enable on-going in-situ diagnostics and prognostics during component lifecycle without necessitating disassembly and off-line inspection. A major benefit of the product would be to facilitate usage of less expensive inspection systems that can take advantage of the advanced high emissivity coatings.

Primary U.S. Work Locations and Key Partners



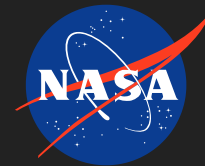
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Organizations Performing Work	Role	Type	Location
Materials Technologies Corporation	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Monroe, Connecticut
● Langley Research Center(LARC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations

Connecticut	Virginia
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Project Transitions

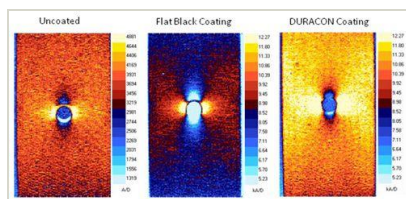
▶ **May 2013:** Project Start

✓ **November 2013:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138109>)

Images



Project Image

DURA-Peel, DURACON-Based Removable High Accuracy IR Thermography Coatings
(<https://techport.nasa.gov/image/130828>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Materials Technologies Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

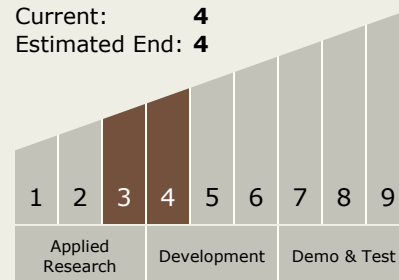
Changkuan Ju

Technology Maturity (TRL)

Start: **3**

Current: **4**

Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.3 In-Situ Instruments and Sensors
 - └ TX08.3.4 Environment Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System